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EARNINGS DIFFERENTIAL BETWEEN MALE-FEMALE IN INDONESIA: EVIDENCE FROM SAKERNAS DATA

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ABSTRACT

This Research aims to analyze the earnings inequality in Indonesia and to know whether the earnings inequality can be explained by individual characteristic factors such as education and experience; location both urban-rural and province where individual reside and work; and based on socio-demography-economic characteristic. Furthermore, this research tries to know how big those factors contribute to the existing inequality, before and after crisis. Using data from SAKERNAS 1996, 1999, 2002, and 2004, the valid observation is about 145660 individual. Result of analysis clearly indicate that there are significant gender inequalities in earnings in Indonesia, based on education and experience; urban-rural location and province where individual reside and work and based on socio-demography-economic characteristic. The profile of earnings inequality by gender seems to be an "inverted U" fashion, with the male-female earnings gap narrowing as educational attainment went up, and reached a plateau at the "post-secondary level" and then tapered off. The analysis also suggests that the industrial affiliation of female workers matter.The result of estimating Mincerian earnings equation shows that such factor as human capital (years of schooling and experience); socio-demography-economic characteristic (being household's head, gender, marriage status, work sector); and location factors (urban-rural and province which individual reside and work), significantly affects individual earning in Indonesia. Meanwhile, the result of decomposing this earnings inequality indicate that factor causing earnings inequality between "male" and "female" is about 41.6 percent caused by endowment differences. On the other hand, most of the gap about 58.4 percent attributed to unobserved and unexplained factors, rather than attributed to differences in observable endowments.

Keywords: Earnings inequality, Decomposition analysis, SAKERNAS.

I. INTRODUCTION

In the last few years, a number of development experts have stressed the importance of looking at the quality of growth as well as the rate of economic growth (Smeru, 2005). This new emphasis signifies that there are many other important issues apart from the economic growth rate. These issues, among

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others, include: who benefits from growth, how women enjoy the benefits of growth compared with men, whether growth is distributed equally across all income groups, whether the growth pie only benefits certain sectors or the whole community, and whether growth plays a positive or negative role in achieving equality in regional incomes. In the end, will economic growth result in welfare equality among people of a country?

On the other hand, since ahead, problems in labor issues have continually become serious problems in Indonesia, because of its disability of the economy to absorb labor force which has grown significantly every year (labor surplus economy). Although Indonesia experienced with high rate of economic growth until 1996, at the average of 7,5 percent during 1970-1996, still the labor condition has no conducive environment, and even the signal toward labor crisis progressively become reality. The economic crisis came unpredictably and hit the development planning which has been designed. The inflation rate increase amazingly, nominal wage increase only 20 percent, moreover, the real wage decrease about 40 percent and become only one-thirds of that before crises. In the end, the poverty conditions become worsen because poor people incomes as a whole decrease sharply below the poverty line.

The labor issues has a large dimension, including earnings inequalities, where the dimension of earnings inequality itself can be seen in varies ways, e.g. earnings inequality by regional characteristics, socio-economic, demographic characteristics, etc. The demographic characteristics, includes gender disparities in earnings have been taken into consideration by policy makers in the last few year.

Why is “gender” important in development? because it improves equality and efficiency. A gender approach to development helps us to ensure quality in three ways: first by ensuring that the benefits of development are equally shared by men and women; second, by ensuring that the different issues faced by men and women are addressed in the course of development; and finally by ensuring that the negative impacts of development are not borne disproportionately by either men or women.

In terms of efficiency, gender inequalities give rise to inefficiencies that negatively affect on growth and development. In other words, taking a gender approach improves economic growth. There are also ample evidences that a gender approach improves the efficiency and effectiveness of development projects.

Women continue to have systematically poorer command over a range of productive resources, including education, land, information, and financial resources. In South Asia, women have only about half as many years of schooling as men, on average, and girls’ enrollment rates at the secondary level are still only two-thirds of boys (World Bank, 2000). Many women cannot own land, and those who do generally command smaller landholdings than men. In addition, in most

developing regions female-run enterprises tend to be undercapitalized, having poorer access to machinery, fertilizer, extension information, and credit than male-run enterprises. Such disparities, whether in education or other productive resources, hurt women's ability to participate in development and to contribute to higher living standards for their families. Those disparities also translate into greater risk and vulnerability in the face of personal or family crises, in old age, and during economic shocks.

In terms of Indonesian context, Indonesian Human Development Report 2001 and 2004, presented some important point related to disparities between male and female from Human Development index (HDI) and Gender-Related Development Index (GDI) value for province level in Indonesia from 1996-2002[2]:

- For every region where data is available, the GDI value is lower than HDI value. This reflects the presence of gender inequality in every society. If there were no gender disparity, the HDI and GDI values would be the same. During the period 1996-1999, the gap between HDI and GDI narrowed, reflecting an improvement in gender equality. Among the 26 provinces, the province of East Kalimantan recorded the largest gap with 15 percentage points in 1996, which decreased to 14 percentage points in 1999. Yogyakarta had the smallest gap of 3.5 percentage points in 1996 and also has narrowed the gap to 2.2 percentage points in 1999.
- Of the 26 provinces, none had a GDI value of less 50 in 1996 but one province-West Nusa Tenggara had a GDI value of less than 50 in 1999. Overall, the crises had an adverse impact on gender inequality as almost all provinces have experienced reversal in GDI. Only Maluku records progress in GDI during the 1996-1999 periods. The sustainability of this progress, is questionable given the severe impact of conflict in this region.
- In 2002, from 30 provinces, 9 provinces experience with decreasing in GDI value. That is Bengkulu, West Java, Central Java, D.I. Yogyakarta, Bali, Nusa tenggara Timur, West Kalimantan, East Kalimantan and Maluku.16 provinces categorized have small GDI value, less than 50. 14 provinces categorized have moderate GDI value with GDI value less than 60.

This paper has two main objectives. *Firstly,* to shed light the earnings differentials condition between “male” and “female” workers in formal sectors in Indonesia before and after crisis. *Secondly*, to know whether the earnings differentials can be explained by individual characteristic factors such as education and experience; rural-urban location; and by region where the individual reside and work; socio-economic characteristics and demographic aspects; and to know how big those

[2] The HDI is measure of average achievements and thus hides differences in human development between men and women. The Gender-Related Development index (GDI) captures achievement in the same set of basic capabilities as the HDI-life expectancy, educational attainment and income-but adjust the results for gender inequality. The GDI for provincial level has been calculated for 16 provinces for 1996 and 1999, while the disaggregated data for 294 districts has been calculated for 1999.

factors contributes to difference that happened, before and after crisis.

The organization of this paper is as follows: We begin by presenting the methodology used to conduct the study in the second section. This includes the general framework of analysis, the empirical estimation of the earnings equation procedure, the selection bias correction and the decomposition analysis. The third section presents the empirical results of earnings gap condition in formal sectors before and after crises, and then the observed wage equations of the wageworkers, followed by decomposition analysis. Finally, we conclude the study in the final section.

II. METHODOLOGY

This research aims to shed light the earnings gap between "male" and "female" who worked in the formal sector in Indonesia before and after the crisis. Furthermore, we want to observe whether these disparities can be explained by individual characteristics factors such as personal characteristics (e.g. education and experience); local characteristics (both regional differences and rural-urban location); socio demographic characteristics (e.g. marital status, households head); employment characteristics, etc and the contribution of those factors towards the gap, before and after the crisis.

The common approach to measure the earnings inequality is by decide the level of the spread of the earnings relative to its reference value –average earnings for example, theoretically, a condition is being equal when all workers with similar characteristics received earnings with the same amount. However, as mentioned by Adelman and Morris (1974), inequalities has multidimensional characters, therefore this inequalities could be measure by various method.

Earnings Differentials

There are two main approaches used to answer the first research question. *First*, by construct a simple descriptive statistics. By using this method, we can find out initial information whether there is a disparity or not, especially gender disparities in Indonesia based on individual characteristics. The more detail involved interaction terms are in the appendix.

The second approach to measure earnings inequality is to employ gini coefficient. Formula to calculate the Gini Index (GI) is:

$$GI = 1 - \sum_{i=1}^{n} (P_i - P_{i-1})(Y_i - Y_{i-1}) \qquad (1)$$

where:

GI = Gini Index

Pi = Cumulative proportion of earnings receiver at i
Yi = Cumulative proportion of individual earnings at i
n = Number of observation

The Gini coefficient is not entirely satisfactory. To see this, consider the criteria that make a good measure of income inequality, namely:

- *Mean independence.* This means that if all earnings were doubled, the measure would not change. The Gini satisfies this.
- *Population size independence.* If the population were to change, the measure of inequality should not change, ceteris paribus. The Gini satisfies this too.
- *Symmetry.* If you and I swap earnings, there should be no change in the measure of inequality. The Gini satisfies this.
- *Pigou-Dalton Transfer sensitivity.* Under this criterion, the transfer of earnings from rich to poor reduces measured inequality. The Gini satisfies this too.

It is also desirable to have

- *Decomposability.* This means that inequality may be broken down by population groups or earnings sources or in other dimensions. The Gini index is not easily decomposable or additive across groups. That is, the total Gini of society is not equal to the sum of the Gini coefficients of its subgroups.
- *Statistical testability.* One should be able to test for the significance of changes in the index over time. This is less of a problem than it used to be because confidence intervals can typically be generated using bootstrap techniques.

Mincerian Earnings Equation

To gain a greater understanding of the earnings gap that exists between male and female, earnings functions will be estimated. Following the well-accepted approach in labor economics Mincerian (1974) earnings functions will be estimated. The main reason for this is that when looking at income inequality the foremost concern is percentage variation of earnings, this is achieved with a semi-log model. The following is the basic model that is used to estimate the earnings in formal sectors:

$$y = \ln Y = a_0 + \sum_{i=1}^{n} a_i X_i + \varepsilon \qquad (2)$$

Where y is dependent variable, ln is natural logarithm, Y is individual earnings, and Xi is a sets of independent variables (X1, X2, .., Xn), a0,a1, … , an; b0, b1, … , bn is estimated coefficients, and ε is residual (error term). The determination of X_i is based not only on human capital theory proposed by Mincer (1974), but also based on various standard research and determined by the data availability. The

variables are including in this estimation presented in table 1 below:

Table 1: Number of Estimated Variables in Mincerian Earnings Equation

Variables		Descriptions
Dependent Variable		
Earnings	ln real wages	Wages per month from working activities (Rp)
Independent Variable		
Human capital	Education dummy : Below Primary (1,0) Primary School (SD) (1,0) Junior Secondary (SMP) (1,0) Senior Secondary (SMA) (1.0) Diploma I-Diploma II (1,0) Diploma III (DIP) (1.0) University (1,0)	1) Highest level of education 2) No Schooling=control
	Experience (Potential experience and potential experience square) (1,0)	Potential experience (years) = age-6-education
Socio-Demography	Household head (1,0) Gender (1,0) Marital Status (1,0)	
Location	Urban-Rural (1,0)	
Sector (Agriculture = control)	Mining and quarriying (1,0) Manufacturing (1,0) Utilities (1,0) Construction (1,0) Trade, Hotel, and Restaurant (1,0) Transportation and Communication (1,0)	Agricultural = control

Table 1: Number of Estimated Variables in Mincerian Earnings Equation (Continued)

	Variables	Descriptions

	Financial, ownership, and business services (1,0) Other Services (1,0)	
Regional dummy	NAD (1,0) North Sumatera West Sumatera Riau Jambi South Sumatera Bengkulu Lampung DKI Jakarta Central Java DI Yogyakarta East Java Bali N.T.B N.T.T West Kalimantan Central Kalimantan South Kalimantan East Kalimantan North Sulawesi Central Sulawesi South Sulawesi South East Sulawesi Maluku Papua	West Java = control
Years dummy	1999 2002 2004	1996=control

Variables description

1. **Real Earnings** is earnings received by employment in formal sectors or has working status as regular employees, a person who works for another person or institution with stable contracts for pay in cash and/or in kind (deflated by composite consumer price index for 46 cities).

2. **Highest level of education** is educational attainment completed by a person, verified with the receipt of a diploma or a letter of completion/certificate. There are eight categories level of education in this study (education dummy variable as a control variable is No schooling):
   1) No Schooling = 0 years

2) Below Primary = 3 years
3) Primary School = 6 years
4) Junior Secondary = 9 years
5) Senior Secondary = 12 years
6) Diploma I -Diploma II = 13 years
7) DIII = 15 years
8) University = 16 years

3. **Experience,** experience variables in this study are potential experience and potential experience square, under assumption that potential experience and potential experience square is a linear combination of age and education (Experience = Age – Education – 6), we can also show that earning is a quadratic function of age. Furthermore, given a certain value of education, we can calculate the value of optimal age in which earning reaches the peak. Minimum age use in this study is a person who has reach 15 years old or above, based on CBS criteria.
4. **Sectors**, the classification of the sectors in earnings equation estimation is aggregated based on Indonesian Industrial Classification from CBS. The omitted variable is agricultural sector.
5. **Provincial Dummies.** In order to keep the consistency of this study, the new provinces resulted from decentralization policy (for 2002 and 2004) is combined again into initial provinces (before decentralization era), and become 26 provinces from present 30 provinces. The omitted variable for this dummy is West Java province.
6. **Dummy Variables.** Almost all the variable in this earnings functions are dummy variables (except potential experience and potential experience square). According to Halvorsen and Palmquist (1980), if the regression coefficients in semi logarithmic are not dummy variables, we can interpret the coefficients directly. But, the interpretation of the coefficients of a dummy variable in semi logarithmic equations would be bias and misleading if we interpret with the same procedure. The correct interpretation of the coefficient of a dummy variable in semi logarithmic equations is formulated (assume there is a single) as :
7.

The general form of the equations estimated as follow:

$$\ln Y = a + \sum_i b_i X_i + \sum_j c_j D_j \,, \qquad (3)$$

where the X_i represent continuous variables and D_j represent dummy variables. For simplicity, the equation can be written as:

$$Y = (1+g)^D \exp\left(a + \sum_i b_1 X_i \right), \qquad (4)$$

where *g* is the relative effect on *Y* of the presence of the factor represented by dummy variable. Thus the coefficient of the dummy variable in equation (1) is $c=ln(1+g)$. the relative effect on *Y* is $g= \exp(c\text{-}1)$, and the percentage effect is equal to $100.g= 100.\{\exp(c)\text{-}1\}$, where c is regression coefficient. In this study, the coefficient of a dummy variable interpreted in percentage effect forms.

Earnings Decomposition Method

To analyses the sources of female-male earnings differentials, we apply a decomposition analysis proposed by Blinder (1973) and Oaxaca (1973). They utilized the fact that the fitted regression line passes through point of sample means. Therefore, the earning of male and female evaluated at means may be written as a function of the form:

$$y^L = a_0^L + \sum_{i=1}^{n} a_i^L X_i^L + \varepsilon^L \quad (5)$$

$$y^P = a_0^P + \sum_{i=1}^{n} a_i^P X_i^P + \varepsilon^P \quad (6)$$

where L is male and P is female.

Blinder (1973) shows that mean difference from logarithm earnings could be decomposed:

$$\bar{y}^L - \bar{y}^P = [a_0^L - a_0^L] + \sum_{i=1}^{n} a_i^L (\bar{X}_i^L - \bar{X}_i^P) + \sum_{i=1}^{n} \bar{X}_i^P (a_i^L - a_i^P) \quad (7)$$

where the line above variables (bar) represent mean difference from the variables. In Blinder (1973) defined as:

R = *Raw differential*

$$= a_0^L + \sum_{i=1}^{n} a_i^L X_i^L - (a_0^P + \sum_{i=1}^{n} a_i^P X_i^P) = E + C + U$$

E = portion of differential attributable to differing endowments

$$= \sum_{i=1}^{n} a_i^L (\bar{X}_i^L - \bar{X}_i^P)$$

C = portion of differential attributable to differing coefficients.

$$= \sum_{i=1}^{n} \bar{X}_i^P (a_i^L - a_i^P)$$

U = unexplained portion of the differential

$= [a_0^L - a_0^P]$

D = portion of the differential attributable to discrimination = $C+U$

Data and Sources of Data

The data bank in which the present study use is from National Labour Force Survey (Sakernas) for 1996, 1999, 2002, and 2004. The surveys mainly aimed to present data, which reflect the condition of laborers/employees carried out annually by CBS. The data consist: the number of employees, the characteristics of employees (such as sex, age, education, provinces, etc) and industry, working hours per week, wages/salaries/income per month, etc.

III. RESULTS

Wage differentials underpinned by productivity differentials provide appropriate incentives for investing in education and training. This in turn means that wage differentials may serve as an important vehicle for human capital formation. Unfortunately, often the case observed earnings gap cannot be fully justified by productivity gaps across individuals and groups. A conspicuous case in gender disparities in the labour market. Studies typically demonstrate that, even after adjusting for similar characteristics (such as age and education), females typically tend to get paid less than males. The resulting wage inequality can thus impair the formation of social capital.

It is with these concerns in mind that the section of this paper approaches the issue of earnings inequality in Indonesia. A major objective of this section is to identify the importance of gender disparities in the labour market. The analysis goes beyond simple measures of gender disparities in terms of the male-female wage ratio by seeking to adjust this ratio for other group-specific characteristics, such as education and experience. "Blinder-Oaxaca Decomposition Analysis" complements this endeavor.

Table 1. shows that from 145,660 individual (total observation from 1996, 1999, 2002, and 2004), proportion of male are 68.83 percent (100,262 observations) and female are 31.17 percent (45,398 observations). This in turn means that market structure in Indonesia still dominated by male. In that period, from urban-rural location, the proportion for male are 69.53 percent up to 73.26 percent in rural area, and for urban area, the composition for male are 66.83 percent up to 68.47 percent.

Table 1: Number and Percentage of Sample by Gender in Rural-Urban 1996, 1999, 2002, and 2004

	1996	1999	2002	2004
Rural	**18,877**	**11,495**	**9,128**	**9,668**

	(100.00)	(100.00)	(100.00)	(100.00)
Male	13,494	7,992	6,687	7,066
	(71.48)	(69.53)	(73.26)	(73.09)
Female	5,383	3,503	2,441	2,602
	(28.52)	(30.47)	(26.74)	(26.91)
Urban	**26,834**	**16,150**	**24,505**	**29,003**
	(100.00)	(100.00)	(100.00)	(100.00)
Male	18,374	10,827	16,439	19,383
	(68.47)	(67.04)	(67.08)	(66.83)
Female	8,460	5,323	8,066	9,620
	(31.53)	(32.96)	(32.92)	(33.17)
Total	**45,711**	**27,645**	**33,633**	**38,671**
	(100.00)	**(100.00)**	**(100.00)**	**(100.00)**

Source : Author's calculation
Notes : Number in parentheses is percent

Earning Differentials: An Overview
By gender and urban-rural location

Table 2 depicts earnings differentials by gender and urban-rural location. As can be seen, earnings differentials generally narrowed during the observations period. In 1996, average earnings received by female are around 67.36 percent of the male in rural area, in other words the gap is around 32.04 percent. Similar with rural area, female receive earnings less of their male counterparts in urban area, female receive about 67.96 percent of the male. Based on this table, females continued to receive earnings increasingly over the analysis period, where in 2004, females has receive earnings around 76.66 percent of the males, the gap between male and female is about 23.34 percent or decrease about 9.30 percent than 1996.

Meanwhile, based on urban-rural location, average earnings received by individual in rural area had improved in 2002, or in other words, individual in rural areas receive earnings about 80.50 percent of their counterparts in urban areas, with disparities decreased significantly about 12.74 percent compared to 1996, although in 2004 the disparities widen again. Over the period, female in rural area continued to receive earnings lower than male, except for 2004, where female had receive about 75.58 of the male and the gap narrowed and decrease about 12.04 percent compared to 1996.

Table 2: Earnings Differentials by Gender and Rural-Urban Location, 1996, 1999, 2002, and 2004 (percent), Deflated by Composite Consumer Price Index for Cities (1996=100)

	1996	1999	2002	2004

Female/Male	67.36 (32.64)	71.19 (28.81)	75.06 (24.94)	76.66 (23.34)
Rural/Urban	67.81 (32.19)	71.95 (28.05)	80.55 (19.45)	73.68 (26.32)
Urban-Female/Male	67.96 (32.04)	72.57 (27.43)	74.40 (25.60)	75.42 (24.58)
Rural-Female/Male	63.17 (36.83)	66.48 (33.52)	73.04 (26.96)	75.58 (24.42)

Source : Author's calculation
Notes : Number in parentheses show the differentials.

Aside from the sectors where majority female is involved, their involvement in any sectors seems to be characterized by "lower tail" in working process. For example, majority of female workers in agriculture sectors in rural area, involve as a poor farm workers. In urban area, where manufacturing sectors is dominant, female only involve as a production workers in textile industries, garments, electronic industries, etc. In trade sectors, female mostly involve in small industries commerce, and so in other sectors, the female involvements has the same patterns.

The general issues faced by female in public sectors is the tendency that female are pulled on to type of work which have lower earnings, bad working conditions and has no job security at all. This matter happens especially for female who has only primary or junior secondary level of education. For urban case, female works as a production workers, whereas for rural case as a farm workers. A matter which requires to be highlighted here is that the tendency for female pulled on to marginal job is in fact not only caused by education factor (education factor here only represent one of causal factor among various other factor). From entrepreneur views itself, there might be possible preferences to employ female at certain sector and for certain type of work because female has willingness to get paid lower than male, representing one of reflection from existence of discrimination in labour market.

Table 2 shows a little views that gender disparities in production continually happen, but from time to time show the downhill tendencies, so that more or less we can say that female has a better condition to access the resources, which progressively improved to have an access to work in high paying sectors although still receive earnings lower than male.

Earnings differentials above also can be presented in other forms, such as earnings size distribution. Such distribution usually used to measure income distribution in the economy or to estimates gini coefficient that present earnings inequality and also the dispersion (see appendix 5 and 6 for gini coefficient results).

Figure 1-4, calculated by dividing the total sample into earnings groups. The earnings groups divide into 5 earnings quintiles. Quintile 1 represent 20% poorest group and quintile 5 represent 20% richest group. The middle quintiles (quintile 2,

3, and 4) are the moderate earnings group (for example, quintile 3 assumed to have the most moderate earnings among society). From each group, then we calculate the proportion or percentage of male and female both who reside in rural or urban area.

From that figures, for example, it is shown that the 20% poorest -over the analysis period- there are more female than male, where in 1996, the proportion of female in this group is about 59.01 percent in urban area and 49.03 percent in rural area. The position become inversed at 20% richest group, where exactly there are more male than female. The proportion of female in this group only about 18.33 percent in urban and 13.42 percent in rural area. The distribution seems to be similar over the analysis period both in urban and rural areas. The proportion of female in 20% poorest group is largest than male. From that condition, we can say that find woman in 20% richest group tends to more difficult compared if we want to find woman in 20% poorest group.

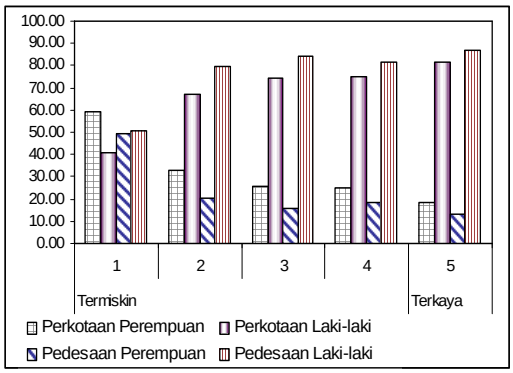


Figure 1: Percentage of Male and Female in Rural-Urban by Earning Groups in 1996

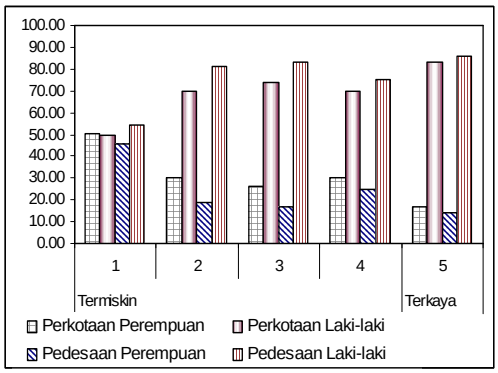


Figure 2: Percentage of Male and Female in Rural-Urban by Earning Groups in 1999

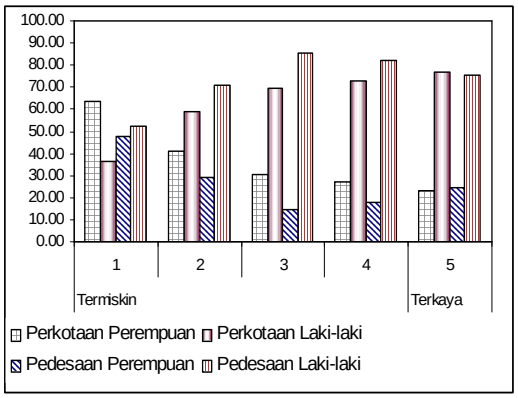


Figure 3: Percentage of Male and Female in Rural-Urban by Earning Groups in 2002

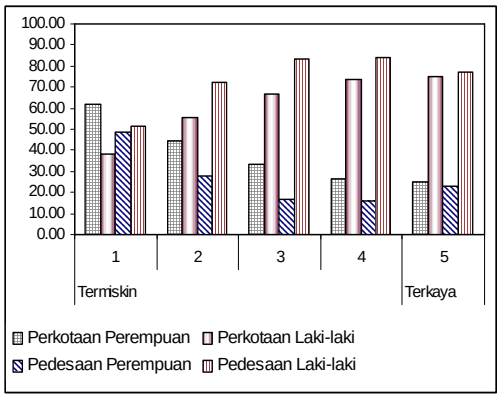


Figure 4: Percentage of Male and Female in Rural-Urban by Earning Groups in 2002

By Education Level

One of the major factor that might caused (of course beside other factors) are the human capital itself, e.g. eduation level. With improvement in education level, the

possibilities of an individual to have a better earnings will progressively opened.

Table 3 and figure 5 shows educational attainment by gender and urban-rual location. It is shown that educational attainment progressively improve both for female and male in urban and rural area. if we look at the detail, the table depicts that both male and female in rural area has educational attainment in rural area lower than in urban area. In 1996, female educational attainment in rural area are about 6.49 years an for male are about 7.28 years. Unlike in urban area, educational attainment for female are about 9.84 years and 10.12 years for male. In line with the rising educational attainment of the general population in Indonesia, the educational attainment over the analysis period has improved, where in rural area, educational attainment for female is around 9.20 years and 9.03 for male. Meanwhile in urban area, educational attainments for female are about 10.93 years and 11.09 years for male.

Table 3: Average Level of Education (Years) by Gender and Rural-Urban Location, 1996-1999,2002, dan 2004

	1996		1999		2002		2004	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Desa**	**Kota**
Female	6.49	9.84	6.94	9.96	8.84	10.57	9.20	10.93
Male	7.28	10.12	7.71	10.21	8.70	10.72	9.03	11.09
Total	7.05	10.03	7.48	10.12	8.74	10.67	9.07	11.03

Source: Author's calculation

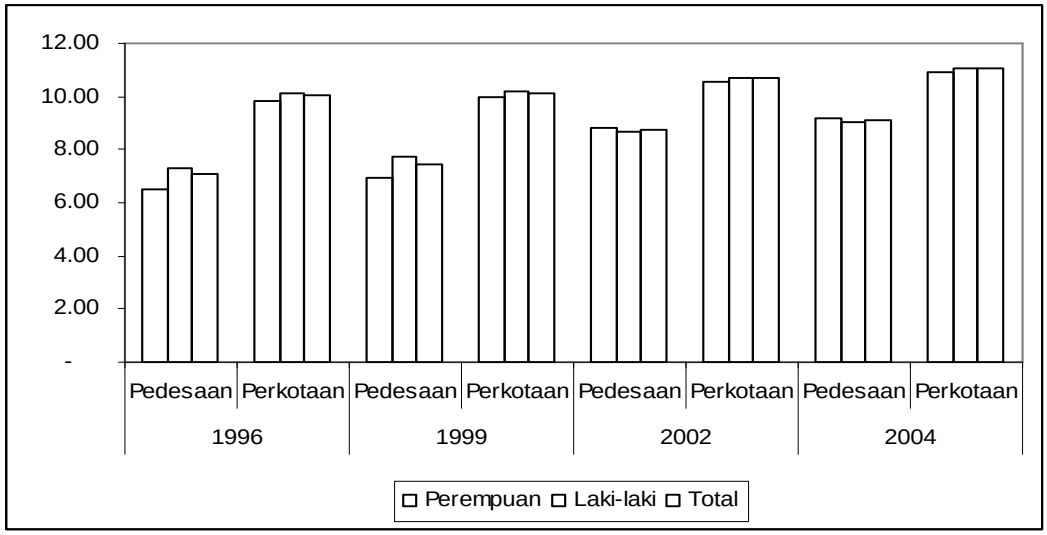


Figure 5: Average Level of Education (Years) by Gender and Rural-Urban Location, 1996-1999,2002, dan 2004

Source: Author's calculation

We realize that educational attainment in Indonesia has progressively improve and the differences between male and female is not significantly different, but if we divide educational attainment into rural-urban, we can see that the educational

attainment in rural areas is more inferior than in urban areas. Beside that, it is also discovered that the educational attainment is still concentrated in secondary level. The ilustration reflect that there are disparities in educational attainment in Indonesia, the tendencies also experienced in regional dimension (Indonesia Human Development Report 2001 and 2004), where DKI Jakarta holds as the highest province in educational in 1996, 1999, and 2002 (about 9.5 years, 9.7 years, and 10.4 respectedly), meanwhile the province who has the lowest eduactional attainment is West Nusa Tenggara with educational attainment are about 4.6 years, 5.2 years, and 5.8 years in 1996, 1999, and 2002 respectedly (see appendix 7).

Educational attainment is higher in Western Parts of Indonesia, so forth the eastern parts needs a higher investment in education sectors. The HDI report (2001) for Indonesia show that Indonesia only spend 1.4 percent of GNP for education compare to global average at 4.5 percent of it's GNP. The best estimates of what it would cost to fulfil the rights to basic education have been produced by the Ministry of National Education in its National Plan of Action: *Indonesia's Education for All*. This report estimates what it would take to fulfil the Dakar Declaration of 2000 on achieving Education for All – offering equal access for all boys and girls to high quality education[3].

The result at the primary level is an annual 'ideal' cost of Rp 1.17 million per pupil and at junior secondary level of Rp. 2.28 million per pupil. The rate is higher for junior secondary schools both because they have higher equipment costs and also because they will have more construction costs; while most of the required primary schools are already in place, even if requiring renovation, increasing junior secondary enrolment will certainly mean building more schools.

To achieve a better education is the rights for every Indonesia's citizens, no matter where they lived, whether in Western parts of Indonesia or in Eastern parts or whether in rural or urban areas. A mechanism based on rights would be somewhat different – making no distinction between the residents of one district and another. Why should standards of basic education be higher in DKI Jakarta than in West Nusa Tenggara? It may be easier to organize education services in DKI Jakarta than in West Nusa Tenggara. But is this difference acceptable? There is after all no suggestion that because it is more difficult and more expensive per vote to hold elections in rural areas elections should therefore be confined to the cities. Why should the rights to have a better education be any different?

Table 4 depicts the differences in real earnings by education level. From that table, it is show that in line with the rising educational attainment, then real earnings received by individual will increase. Before the crisis in 1996, real earnings for persons who has no schooling compare to university graduate is

[3] The calculation made by The Ministry of Education in their report "National Action Plan: *Indonesia's Education for all*. The reports detailed discuss the expenditure that needs to make boys and girls are equal in term of education.

almost five times (43.46 percent versus 216.09 percent), meanwhile compared to senior secondary is almost twice (120.57 percent versus 216.09 percent). This condition also continually happen over the surveys period, where in 2004, by education level, the individual who hold university qualification receive earnings higher than others educational level. For example, the persons with primary level of education is tree times lower than university level (59.52 percent versus 191.11 percent)

Tabel 4: Earnings Differentials by Education Level, 996-1999,2002, and 2004 (Percent)

	1996	1999	2002	2004
All Levels	**100.00**	**100.00**	**100.00**	**100.00**
No Schooling	43.46	45.52	44.26	44.58
Below Primary	58.26	53.63	53.27	52.18
Primary	68.98	67.32	63.60	59.52
Junior Secondary	89.19	85.51	76.32	72.17
Senior Secondary	120.57	122.25	108.88	103.11
D1-D2	152.54	152.50	137.83	130.24
D3	191.01	185.28	154.02	162.71
University	216.09	191.42	189.03	191.11
Female/Male ratio (Percent)	**67.36**	**71.19**	**75.06**	**76.66**
No Schooling	52.33	52.86	57.61	62.60
Below Primary	50.62	54.28	51.29	58.59
Primary	54.17	55.89	61.03	61.31
Junior Secondary	63.04	61.73	69.74	69.91
Senior Secondary	79.59	77.47	77.20	78.99
D1-D2	78.05	80.41	80.93	79.67
D3	69.51	93.60	75.06	79.15
University	66.24	73.53	75.14	72.68

Source: Author's calculation

Meanwhile, the discrepancies in real earning between male and female, as can be seen in the table, shows that male receive a higher real earning compare with the female. In 1996 female, only receive 67.36 percent earning of the male. The differences become smaller in the sequencing year. The detailed figures on this difference are 71.19 percent, 75.06 percent, and 76.66 percent of the male earning. As the increase of the educational attainment of the workers, the discrepancies in earning show the similar trend. In the group of the workers that does not attend school, female earning received in average is 52.33 percent of the earning received by the male. This figure shows less difference in the recent year, show in 2004 that female earning receives 62.60 percent of the male. The condition of the difference becomes less severe when the educations of the worker show an increasing level in term of the education; the figures are increase in the diploma education and slightly decrease in universities education. Where in the period of 1996-2004 female with the first and second diploma degree receive real earnings approximately 78.05 percent, 80.41 percent, 80.93 percent and 79.67 percent in

2004 figure of their counterpart real earnings. In the third diploma degree education, female only receive 69.51 percent in the 1996, the number jumped in 1999 where female earnings receive 93.60 percent of the earning of the male but the figure is become depreciate in 2002 where female receive 75.06 percent of the male earnings, and in the 2004 the figure becomes better (79.15 percent)

A more effective way of depicting the significance of adjusting the aggregate male-female wage gap, shown in figure 6. The pattern is clear: gender disparities behave in an 'inverted U' fashion, with the male-female wage gap narrowing as educational attainment went up, reached a plateau at the 'post-secondary level' and then tapered off.

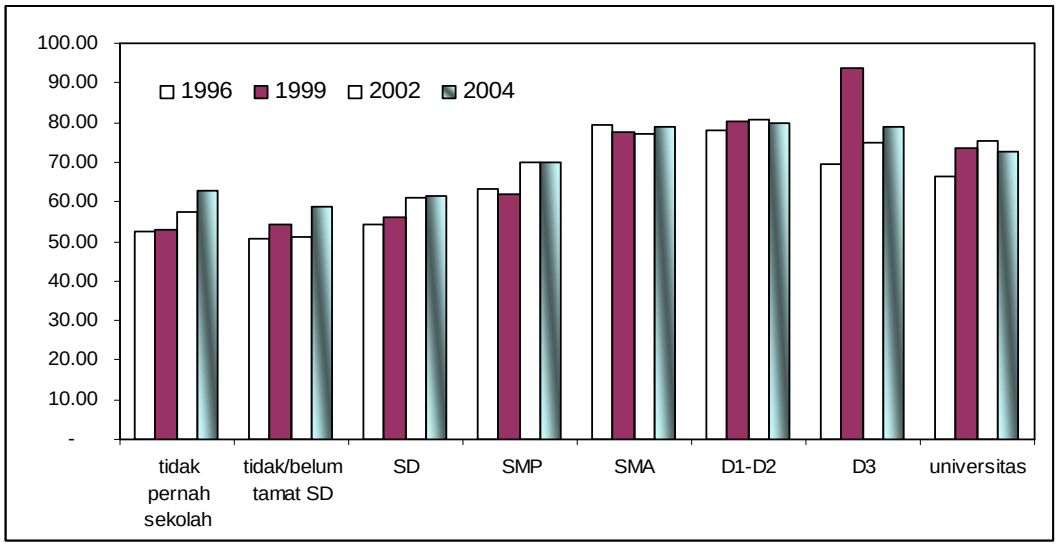


Figure 6: Gender Disparities in Eranings by Education Level, 1996, 1999, 2002, and 2004 (Percent)
Source : Author's calculation

By Sectors

Earnings differentials by sectors (table 4.6), indicate that the highest earnings are received by the individual who worked in the sector that can be identified as the "high paying sectors" such as mining and quarrying; utilities; Financial, ownership, and business services. The first are Financial, ownership, and business services sector, where the workers receive higher earnings than other sectors. The detailed number of 1996 and 2004 are 151.58 percent and 190.19 percent. The second sector that the workers receive higher earnings is mining and quarrying sector, 145.78 percent and 181.53 percent. Workers that receive the lowest earning are in agricultural sector. The number is 51.97 percent and 62.32 percent compare to the average worker that worked in the other sector.

In the meantime, if we look for each sector during 1996-2004, it can be seen that the impact of economic crisis in middle 1997 was still be felt by several sectors

that in turn had also affected real earnings in general that was received by the individual in this sector. Manufacturing sector is the most striking sector, where in 1996, individual in this sector has receive real earnings around 93.14 percent compare to total average, descended quite drastic to 1999 (about 86.29 percent). This condition indicated that the impact of the crisis really influenced this sector and just experienced to increase again in 2002 and 2004, reflecting recovery periods, although could not achieve the value reached before the crisis. This was overturn with the other services sector, where during 1996, in general this sector receive 12.65 percent, increase quite sharply to around 122.40 percent in 1999 or around 22.40 percent on real earnings in general and tapered again in the following year up to 2004.

Table 5: Earnings Differentials by Sector, 1996-1999,2002, and 2004 (Percent)

	1996	1999	2002	2004
All Sectors	**100.00**	**100.00**	**100.00**	**100.00**
Agricultural Sector	51.97	54.67	62.32	60.26
Mining and Quarriying	153.48	181.53	145.78	150.98
Manufacturing	93.14	86.29	88.10	89.08
Utilities	145.64	146.81	125.21	135.20
Construction	98.01	91.65	92.74	104.62
Trade, hotel, and restaurant	94.55	91.46	85.94	87.99
Transportation and communication	121.25	113.41	106.63	110.32
Financial, ownership, and business services	190.19	173.94	151.58	155.94
Other services	112.65	122.40	115.19	106.97
Female/Male ratio (percent)	**67.36**	**71.19**	**75.06**	**76.66**
Agricultural Sector	51.10	54.58	52.76	64.36
Manufacturing	58.96	60.33	69.64	72.49
Trade, hotel, and restaurant	72.75	71.57	58.57	80.20
Financial, ownership, and business services	86.80	123.36	84.39	90.63
Other services	70.36	73.80	70.66	72.67

Source: Author's calculation

Together with manufacturing sector, the sectors that experienced decrease after crisis, are transport, storage and communication sector; Financial, ownership, and business services; services; as well as construction sector in 1999, which received real earnings about 91.65 percent on average, afterwards rise again in 2004, with the real earnings is about 104.62 percent, or 4.62 percent higher relative to total sector.

Apart from the differences in earnings across sectors , the table 5 also shows that the gender gap in earnings is based on several sector chosen, nearby that , the explanation concerning the gap is also showed in figure 1.7. From the table 5 and figure 7 we figure out that the female earnings improved relative to those males in all sector. During 1996-2004, the real earnings received by female in agricultural sector increased from 51.10 percent to 64.36 percent and 58.96 percent to 72.49 percent in manufacturing sector of the male earnings in 2004

The gender gap in earnings varied across sectors, where it is clearly shows that in the sectors requiring more skill and higher level of education, the gender gap in earnings continually became smaller. Average earnings in agricultural sector for female relative to male continually narrowed to 64.36 percent; 72.49 percent in the manufacturing sector; 72.67 percent other services; 80.20 percent in trade, hotel, and restaurant; and 90.63 percent in the Financial, ownership, and business services sector.

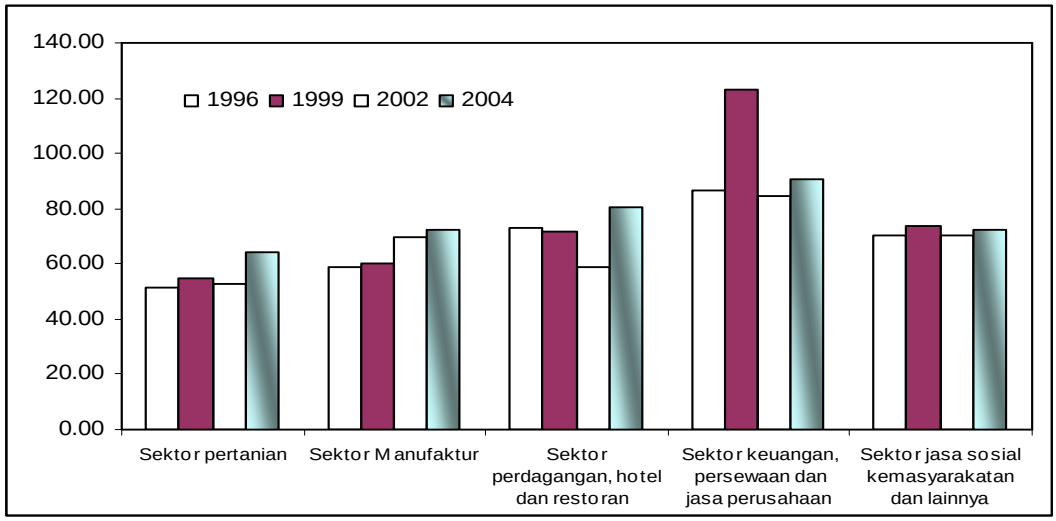


Figure 7: Gender Disparities in Earnings in Selected Sectors, 1996, 1999, 2002, dan 2004 (Percent)

Source: Author's calculation

The earnings differential between male and female consistently improved, especially in manufacturing sector, meanwhile the other sectors; in general experienced the decline again in 2002 and rise again in 2004. The Financial, ownership, and business services sector, noted as the sector that most attracting in earnings compared to other sectors, and from time to time experienced the fluctuation. In 1996, female earnings in this sector are about 86.80 percent of their male counterparts. Interestingly, in this sector, female has receive earnings higher than male in 1999 with the differences are about 23.36 percent. However, this achievement is just temporary, where in 2002 the female earnings tapered again and improve in 2004 although still receive earnings lower than male.

It would be useful at this juncture to summarize the findings so far:

- Aggregate measures of gender gap in earnings may overstate the extent of gender discrimination in the labour market. There is some evidence that as the educational attainment of female workers rose —but by no means achieved parity— with their male counterparts. This laudable development, however, did not carry over to university level education. At this juncture, women still earn about 20-30 percent less than men.
- The profile of gender disparities behave in an 'inverted U' fashion, with the

male-female earnings gap narrowing as educational attainment went up, reached a plateau at the 'post-secondary level' and then tapered off.

- At least one can infer that one effective way of resolving gender discrimination in the labour market is to enhance the educational endowment of females. The analysis also suggests that the industrial affiliation of female workers matter.
- Finally, we guest that an older female workers appear to be at a particular disadvantage: the male-female wage gap worsened with age. It is possible that cumulative differences in the amount of work experience achieved by females compared with males – as a result of periods of female non-participation in employment due to child birth and child care – account for the widening of the male-female wage gap as females get older. In addition, older women probably had fewer educational opportunities than older men. So one way of addressing gender discrimination in the Indonesian labour market, is to simultaneously tackle age discrimination, but this is by no means the most important of only factor.

Regional Differences

Indonesia consist of 27 provinces during 1996 or 26 provinces during 1999 (excluding East Timor), after the decentralization era in 2002 and in 2004 several regencies and municipalities separate from the early province, that is in the West Java province, North Sumatra, South-east Sulawesi, Maluku, and Papua. Aside from classification of the province, Indonesia also could be classified into 5 territories: Sumatra, Java, Kalimantan, Sulawesi, and the other islands. Indonesia had the distribution and the activity of economics that was different of one territory to another. One of the important characteristics was to be the Java island, that territory only measure 6,9 percent of the total Indonesian territory, but was occupied by around 60 percent (in 1990) or 59 percent (in 2000) of the Indonesian populations.

Indonesia not only had a spatial distribution in population, but also in income or earnings. Based on the SAKERNAS data from 1996 until 2004, regional earnings differentials, though still significant between provinces and between island (table 6). In fact, in general the nominal earnings of all provinces were increase quite significant from the period before the crisis to the period after the crisis. However, we cannot say that the peoples in Indonesia have achieved a higher level in welfare; this increase just only resulted from the increasing in inflation rate and consumer price index that caused by economic crisis and the reflection of the increasing in cost of living.

There were important differences in employee earnings between provinces and regions (table 6). Some of this was due to cost of living differences. Papua has the highest country's in real earnings on average over the analysis period. In 1996, the real earnings per month in this province are about Rp. 363.464 with the index are about 168 percent, above Indonesia's average. Meanwhile in 1999, this province

has receive about Rp. 505,490 with index about 168 percent with index value is about 196 percent, in 2002 is reached Rp. 490.874 and index is about 158 percent, still much higher compared with total average of Indonesia.

As the capital of Indonesia, DKI Jakarta at least holds around 5 position in real earnings (Rp. 332,793 per month in 1996, Rp. 245,148 in 1999, Rp. 341,483 in 2002, and Rp. 375, 349 in 2004) and the index for each year is above average. In the meantime, Central Java is the lowest province in real earnings, (Rp. 157,864 per month in 1996, Rp. 129,960 in 1999, Rp. 212,167 in 2002, and Rp. 217,697 in 2004), with the index value below average over the analysis periods. Other province in Java Island also experienced with lower real earnings compared to average in 1996 to 2004, except West Java in 1996.

Table 6: Earnings by Province, 1996, 1999, 2002, and 2004 Deflated by Composite Consumer Price Index for Cities (1996=100)

Province	1996		1999		2002		2004	
	Real Earnings (Rp/Month)	Index	Real Earnings (Rp/Month)	Index	Real Earnings (Rp/Month)	Index	Real Earnings (Rp/Month)	Index
Indonesia	**216,423**	**100**	**183,724**	**100**	**286,187**	**100**	**311,171**	**100**
NAD	270,938	125	236,691	129	339,767	119	314,173	101
North Sumatera	204,442	94	180,876	98	260,212	91	275,795	89
West Sumatera	212,044	98	210,890	115	296,215	104	332,969	107
Riau	262,299	121	285,125	155	328,199	115	386,344	124
Jambi	221,062	102	238,502	130	287,701	101	278,783	90
South Sumatera	251,558	116	165,487	90	283,885	99	276,290	89
Bengkulu	216,588	100	185,641	101	303,316	106	258,783	83
Lampung	172,736	80	165,164	90	221,275	77	244,000	78
DKI Jakarta	332,793	154	245,148	133	341,483	119	375,349	121
West Java	217,733	101	164,590	90	275,658	96	281,514	90
Central Java	157,864	73	129,960	71	212,167	74	217,697	70
DI Yogyakarta	189,722	88	166,845	91	227,135	79	247,011	79
East Java	169,965	79	144,963	79	223,061	78	243,562	78
Bali	209,719	97	188,194	102	287,101	100	294,487	95
N.T.B	171,777	79	155,788	85	232,642	81	239,127	77
N.T.T	212,192	98	193,077	105	273,878	96	300,313	97
West Kalimantan	216,353	100	198,472	108	276,446	97	282,416	91
Central Kalimantan	252,583	117	255,965	139	347,914	122	391,534	126
South Kalimantan	231,300	107	216,016	118	313,017	109	304,308	98
East Kalimantan	350,504	162	276,252	150	392,085	137	353,739	114
North Sulawesi	216,513	100	194,353	106	287,191	100	303,129	97
Central Sulawesi	197,690	91	185,499	101	298,083	104	302,569	97
South Sulawesi	209,457	97	209,106	114	290,049	101	336,020	108
South East Sulawesi	285,533	132	243,014	132	281,780	98	339,069	109
Maluku	256,414	118	233,534	127	344,643	120	352,300	113
Papua	363,464	168	360,175	196	505,490	177	490,874	158

Source: Author's calculation

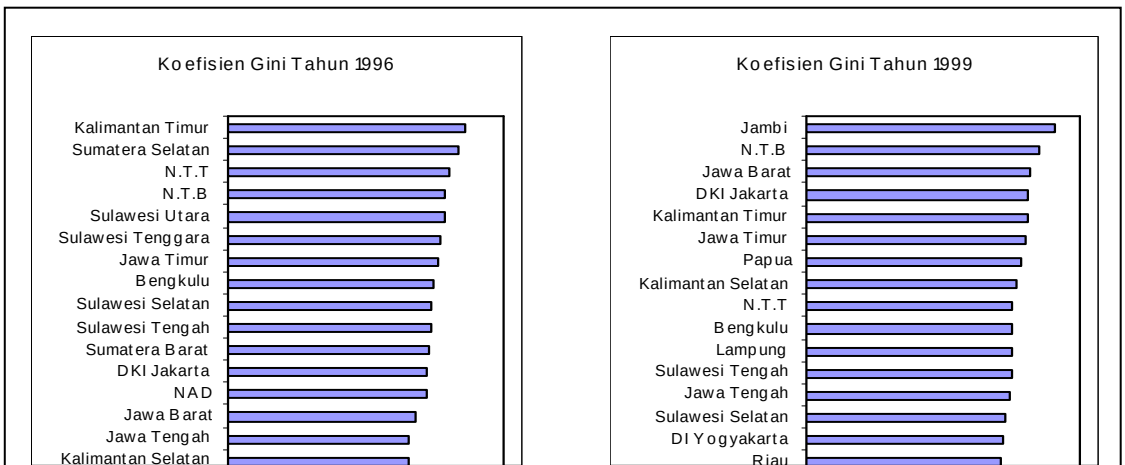
As the reflection from the existence of the increasing in living cost, the provinces in the Sumatran island and kalimantan had reached real earnings averagely increase. The index value has no differences with the total average or sometimes above the average. Bali province as the main tourism destination in Indonesia,

experienced the rise in the position related to earnings in 1996 (the index is about 97 percent) and become 102 percent in 1999 and for 2004 the index decrease below average. The similar patterns also happened in several provinces in Sulawesi Island, where in 1996 has the real earnings below average and improve for the next years and above the average in 1999. Meanwhile, Maluku province contionually records higher enough in real earnings relative to total average of Indonesia. Sulawesi Island and Maluku province has a better GRDP value during the crises caused by cocoa export.

Visually, figure 8 shows the gini ratio in earnings. Several literatures about earnings or income inequality categorized the gini ratio below 0.35 as low inequality, whereas gini coefficient between 0.35-0.5 categorized as moderate inequality and above 0.5 is high inequalities.

Based on this figure, gini ratios in Indonesia's provinces categorized as a low and moderate inequality, where the value has no reached above 0.5 with tendencies that most of the provinces categorized have moderate inequality. In 1996, three province records the worsen inequalities relative to other provinces. East Kalimantan is the most unequal with gini ratio about 0.429, South Sumatera holds the second position with 0.418 and the third is East Nusa Tenggara with gini ratios about 0.40.

Papua's province, Central Kalimantan and Jambi respectedly are the most lowest relative to other provinces in gini coefficients. Papua records the lowest gap with gini ratios about 0.275, Central Kalimantan is about 0.276, and Jambi province is about 0.28. The position is less similar in 1999, Jambi provinces has the highest disparities, the gini ratio is about 0.455, and so the Papua's, with gini ratio is about 0.39. the Central Kalimantan consistently has a low inequality, in fact in 2002 and 2004 has the lowest inequality relative to other provinces, with gini ratio are about 0.272 and 0.266 respectedly.



Estimation results

According to the objectives of this paper, this section present about the factors that determines earnings inequalities in formal sectors in Indonesia, and whether

the gender factor (male or female) is the one of the factors that influence on earnings beside other factors from the Mincerian earnings equation estimation. Moreover, with decomposition technique could be known whether the earnings inequalities caused by the differences of the observed characteristics between male and female (e.g. the differences in eduation level, potential experience, etc), or caused by unobservable factors.

Mincerian Earnings Equation Estimation Results

Table 7 depicts the results from the Mincerian earnings function estimation with OLS method. The t-statistics for individual parameters are large in general, indicating the quality of parameter estimates; the result is as follows (see for the detail in Appendix 2)

Tabel 7: Regression Results on Earnings Equation in Indonesia
Dependent Variable: Log Earnings[a),b)]

Variables			
Education dummy : (No Schooling=control)			
Below Primary (1,0)	0.1499	(13.62)	***
Primary School (SD) (1,0)	0.3575	(34.21)	***
Junior Secondary (SMP) (1,0)	0.5759	(52.67)	***
Senior Secondary (SMA) (1.0)	0.8854	(81.92)	***
Diploma I-Diploma II (1,0)	1.2203	(87.83)	***
Diploma III (DIP) (1.0)	1.2865	(98.68)	***
University (1,0)	1.3259	(111.74)	***
Experience (Potential experience and potential experience square) (1,0)[c)]	0.0377	(64.08)	***
Potential experience square	-0.0005	(-50.07)	***
Household Head (1,0)	0.0877	(20.44)	***
Marital Status (1,0)	0.2208	(56.12)	***
Rural-Urban (1,0)	0.0839	(20.19)	***
Gender (1,0)	0.0425	(11.91)	***
Sectors (Agricultural sector = control)			
Mining and quarriying (1,0)	0.5447	(42.45)	***
Manufacturing (1,0)	0.2954	(49.97)	***
Construction (1,0)	0.3692	(19.07)	***
Utilities (1,0)	0.3755	(54.31)	***
sTrade, hotel, and restaurant(1,0)	0.2097	(31.04)	***
Transportation and communication (1,0)	0.3429	(43.82)	***
sektor keuangan, persewaan dan jasa perusahaan (1,0)	0.3757	(39.28)	***
sektor jasa sosial kemasyarakatan dan lainnya (1,0)	0.1737	(30.01)	***
Propinsi (Propinsi Jawa Barat=kontrol)			
NAD (1,0)	0.0715	(5.93)	***
Sumatera Utara (1,0)	0.0410	(5.21)	***

Tabel 7: Regression Results on Earnings Equation in Indonesia
Dependent Variable: Log Earnings (Continued)

Variables		
Sumatera Barat (1,0)	0.0152	(1.36)

Riau (1,0)	0.2382	(21.29)	***
Jambi (1,0)	0.0353	(2.65)	*
Sumatera Selatan (1,0)	-0.0063	(-0.64)	
Bengkulu (1,0)	-0.1065	(-7.14)	***
Lampung (1,0)	-0.1697	(-16.08)	***
DKI Jakarta (1,0)	0.1847	(34.14)	***
Jawa Tengah (1,0)	-0.1963	(-34.25)	***
DI Yogyakarta (1,0)	-0.2099	(-23.83)	***
Jawa Timur (1,0)	-0.1749	(-31.69)	***
Bali (1,0)	-0.0064	(-0.75)	
N.T.B (1,0)	-0.2360	(-21.42)	***
N.T.T (1,0)	-0.1850	(-14.7)	***
Kalimantan Barat (1,0)	0.1039	(9.93)	***
Kalimantan Tengah (1,0)	0.1703	(11.25)	***
Kalimantan Selatan (1,0)	0.0836	(7.84)	***
Kalimantan Timur (1,0)	0.2082	(19.28)	***
Sulawesi Utara (1,0)	-0.0694	(-5.85)	***
Sulawesi Tengah (1,0)	-0.1525	(-10.94)	***
Sulawesi Selatan (1,0)	-0.0397	(-3.85)	***
Sulawesi Tenggara (1,0)	-0.0344	(-2.34)	*
Maluku (1,0)	0.0791	(5.73)	***
Papua (1,0)	0.3987	(29.12)	***
Tahun (tahun 1996=kontrol)			
D99 (1,0)	-0.1963	(-46.12)	***
D02 (1,0)	0.1295	(31.64)	***
D04 (1,0)	0.1628	(40.21)	***
_constant	10.3787	(836.11)	***
R-squared	**0.4901**		
Adjusted R-squared	**0.4899**		
F-stat	**2914.30**		
Mean VIF	**2.90**		
Breusch-Pagan/Cook-Weisberg test	**893.43**		
Number of Observation	**145,660**		

Source : Author's calculation

Notes : *** significant at α=1%, ** significant at α = 5% * significant at α = 10%, number in parentheses is t-stat

a) Deflated by Composite Consumer Price Index for Cities (1996=100)
b) Potential experience = Age-6-education

Education

Education plays a significant role on individual earning. In general, the results show that earnings differences based on educational differences is larger for female compared to their male counterparts. The table xxx below, present the estimation results in percentage effects forms.

Table .8: Earnings Differential by Education Level (Percent)

Education (years)	Male	Female	Total
(3) Below Primary	12.22	6.75	16.17

(6) Primary	32.25	36.47	42.98
(9) Junior secondary	56.19	89.38	77.87
(12) Senior Secondary	104.58	186.65	142.40
(13) D1-D2	174.86	294.60	238.82
(15) D3	202.10	316.12	262.01
(16) University	223.44	316.29	276.56

Source : Autho's calculation
Notes : relative to those who has no schooling

The earnings differences by education level clearly show the tendencies to rise as the improvement in educational achievement. This result is similar to previous estimates on earning function in Indonesia, which shows that the effect of education on earning is larger for those with higher level of education. One explanation for this is the scarcity of skilled labor in Indonesia, which leads to rapid increase in wages of those with higher education. There is also a clear sign that the There is also a clear sign that the effect of education declined over the analysis period, especially for female with higher education, even though the effect is still larger compared with those of the male.

The fact that the female experience stronger effect of education in determining earning is clearly shows in table 8. For those male who has primary education level, then the earnings will be about 32.25 greater than for those who have no schooling at all, ceteris paribus. In the meantime, for those male with junior secondary level, the earnings will higher about 56.19 percent than for those male who have no schooling. For senior secondary is about 104.58 percent higher, D1-D2 is about 174.86 percent, D3 is about 202.10 percent, and for university level is about is about 223.44 percent relative to individual with no schooling.

Meanwhile, for female who have primary level of education, the earnings will higher about 36.47 percent relative to other female who has no schooling experience, ceteris paribus. For junior secondary level is about 89.38 percent, senior secondary is about 186.5 percent, D1-D2 is about 294.60 percent, D3 about 316.12 percent, and university level is about 316.29 percent relative to individual with no schooling experience.

The fact that the female has stronger effect of education in determining earning is clear. In line with the improvement in education level, thus the earnings increase significantly with the effect is stronger for female than for male. This condition partly because of the narrower range of formal sector occupations held by more educated females. In addition, increasing labor demand and employment opportunity of more educated female tends to pull up female earnings.

Experience

The impact of potential experience on earning is significant. The signs suggest a clear quadratic effect, or an inverted U-shape curve. In other words, earning

increases as working experience increases, reaches the peak at a certain point, and then declines. Because year of experience is a linear combination of age and education (Experience = Age – Education – 6), we can also show that earning is a quadratic function of age. Furthermore, given a certain value of education, we can calculate the value of optimal age in which earning reaches the peak. An addition of one year's potential experience will increase earning about 3.77 percent[4].

Head of the household and Marital Status characteristics

Variables associated with the head of household and marital status matters in determining earnings. If an individual is the head of household , his or her earning tend to be higher, and the effect is stronger for male and so if his or her has status as a married persons. For those who are not the head of the household, earnings of the household head matters in determining their earnings. The impact of the head of the household's income on the earning of the member of the household is positive, and the effects are larger for male individuals. This is a clear example of how family characteristic matters in determining individual earnings.

Rural-Urban Location

The location factor where the individual reside has positively significant on earning. From the estimation results, it is clear that individu who lived in urban areas will have a greater earnings compared to induvidual in rural areas. The differences is about 8.75 percent.

Gender

The variable that becomes the focus of the study is whether the individual is "male" or "female" evidently have a strong significant influence on earning. From the estimation result, it can be interpret that if the individual is "male", then the earning is about 4.34 percent higher relative to female as their counterparts. The interesting points in this result is, that if two individuals have the same characteristics (the same X_i) except gender differences (whether "male" or "female") then those earnings would still remains different about 4.34 percent.

Sectors

The sectoral dummies consistently have a strong significant impact on earning and become the second factors of the most important factors below education factors.

[4] The regression coefficient could directly interpret because potential experience is not dummy variable. Including potential experience square as one of the independent variables is standard in *Mincerian* Earnings equation because of the hypothesis that the effect of potential is not linear.

The estimated model shows that individuals who worked in non-agricultural sectors will have a greater earning relative to those who worked in agricultural sector. With the 1% of the confidence level, the individual who worked in Mining and quarrying sector will receive 72.41 percent higher than in agricultural sector.

Meanwhile, in Financial, ownership, and business services sector the differences is about 45.60 percent; utilities sector is about 45.57 percent; 44.66 percent in construction; 40.90 percent in transportation and communication sector; 34.37 percent in manufacturing; 23.33 percent in trade, hotel, and restaurant sector; finally in other services is about 18.97 percent higher, compared to those who worked in agricultural sector. From that view points, the result suggest that for the sectors requires more skill and education level will give some earnings greater than the sectors which does not needs more skill and high education level.

Regional dummy

Almost all of the regional/provincial dummies have a significant impact in determining earnings. The sign in regression coefficients reflecting regional variation if we compare with individuals who reside in West Java province as omitted variable.

The provinces relatively have greater earnings compared with individuals who lived in West Java are: Papua (48.99 percent), Riau (26.90 percent), East Kalimantan (23.15 percent), Central Kalimantan (18.57 percent), West Kalimantan (10.95 percent), South Kalimantan 8.72 percent, Maluku (8.23 percent), NAD (7.41 percent), North Sumatera (4.19 percent), Jambi province (3.60 percent).

As the opposites, the provinces relatively have lower earnings compared with individuals who reside in West Java are: West Nusa Tenggara (21.02 percent), DI Yogyakarta (18.93 percent), Central Java (17.82 percent), East Nusa Tenggara (16.89 percent), East Java (16.04 percent), Lampung (15.61 percent), Central Sulawesi (14.14 percent), Bengkulu (10.11 percent), North Sulawesi (6.71 percent), South Sulawesi (3.89 percent), and finally South East Sulawesi (3.38 percent)

Meanwhile, the regional dummies, which no significantly differences with individuals who reside in West Java province are West Sumatera, South Sumatera, and Bali province.

Year Dummies

Year dummies, with 1996 as a control variable (the year before crisis) show that dummy variable for 1999 have impact negatively significant on earning. The

difference is about 17.82 percent. In other words, individual in 1999 receive real earning lower than in 1996, although there are increasing in nominal earning in 1999 (about twice than 1996), but the increase in consumer price index and inflation rates caused by the economic crisis, have a strong impact to the real earning in 1999 as the reflection of higher in cost of living.

As the impact of the economic crisis, the disparities dramatically narrowed in 1999. This finding is not surprise, because there are many studies shows that in Indonesia, the most affected by the crisis is the "upper tail" of the economic societies. The worries concern is that the tendency to the increase in disparities appears in the pre-crises era (Smeru, 2005). For the Latin America cases, the World Bank from their investigations states that the impact resulted from crises precisely increase disparities.

In the meantime, year dummy for 2002 and 2004 plays a significant role on individual earning. The value is about 13.83 percent and 17.68 percent. In other words, the person in 2002 will higher 13.83 percent and 17.68 percent in 2004 relative to individuals in 1996.

Blinder-Oaxaca Decomposition Results

Table 9 below portrays a decomposition results on earnings differential (see appendix for the details). From this analysis, we can investigates, whether the determinant factors is due to observed characteristics (or endowments factor) or due to unobserved characteristics, and we can identify how much of each factors contribute to earnings disparities.

Table 9 : Summary of Decomposition Results (as Percentage)

Amount attributable:		
Raw differential (R)	E + C + U	39.4

- Due to endowments	E	16.4
- Due to coefficients	C	– 21.6
Shift coefficient	U	44.6
Adjusted differential (D)	C + U	23.0
Endowment as % total (E/R):	E/R	41.6
Discrimination as % total	D/R	58.4

Source: Author's calculation.

Notes:

- U = unexplained portion of differential (difference between model constants)
- D = portion due to discrimination (C+U)
- positive number indicates advantage to high group
- negative number indicates advantage to low group

Some of important points could be interpret from the table above. Raw differential (R) is about 39.4 percent indicate that there are differences in earning between "male and "female", which earning for "male" is higher than "female" about 39.4 percent.

From the 39.4 percent, only 16.4 percent explained by the differences in observed characteristics (or by X_i that are education level, experience, socio-demography, economic activities/sectors, and location/regional characteristics) between "male" and "female" and show that male endowments is more superior compared to female. On the other hand, most of the disparities, about 23.0 percent are due to unobserved factors (C+U). In other words, 58.4 percent (D/R) from these earnings disparities could not explained by the observed variables or factors.

The findings is quiet interesting, that we can say that about 41.6 percent of the differences caused by the differences in endowments such as educational achievement, or working experience. The decomposition results clearly shows that most of these disparities caused by unobserved variables.

What are the unobserved variables above? Several aspects like culture, work efforts, government regulations, or whether the persons is the trade union members or not, type of occupations[5], etc might be the possible factors in determining earnings disparities in Indonesia. The discrimination[6] practices in labour market could also cause these disparities. The question of unobserved factors determining earning disparities is still open questions and above the author's capabilities.

IV. CONCLUDING REMARKS

[5] Type of occupations might be one of possible factor causing the earning disparities, because if we look at the type of occupations of the individuals, we can identified the person is working in white collars groups or in the opposite (blue collars).

[6] Blinder (1973) explicitly mentions that the C+U are the discrimination factor.

Result of analysis clearly indicates that there are significant gender inequalities in earnings in Indonesia, this study conclude is as follows:

1. Based on education and experience; urban-rural location and province where individual reside and work and based on socio-demography-economic characteristics. The profile of earnings inequality by gender seems to be an "inverted U" fashion, with the male-female earnings gap narrowing as educational attainment went up, and reached a plateau at the "post-secondary level" and then tapered off. The analysis also suggests that the industrial affiliation of female workers matter.

2. The result of estimating Mincerian earnings equation shows that such factor as human capital (years of schooling and experience); socio-demography-economic characteristic (being household's head, gender, marriage status, work sector); and location factors (urban-rural and province which individual reside and work), significantly affects individual earning in Indonesia. Meanwhile, the result of decomposing this earnings inequality indicate that factor causing earnings inequality between "male" and "female" is about 41.6 percent caused by endowment differences. On the other hand, most of the gap about 58.4 percent attributed to unobserved and unexplained factors, rather than attributed to differences in observable endowments.

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Appendix